MINUTES
of the
SECOND MEETING
of the
RADIOACTIVE AND HAZARDOUS MATERIALS COMMITTEE

July 12-13, 2007
Room 307, State Capitol
Santa Fe

The second meeting of the Radioactive and Hazardous Materials Committee was called to order by Representative John A. Heaton, chair, on July 12, 2007, at 9:10 a.m. in Room 307 of the State Capitol in Santa Fe.

Present
Rep. John A. Heaton, Chair
Sen. Richard C. Martinez, Vice Chair
Sen. Vernon D. Asbill
Rep. William J. Gray
Sen. John T.L. Grubesic
Sen. Carroll H. Leavell
Rep. Antonio Lujan
Rep. Jim R. Trujillo
Rep. Jeannette O. Wallace (July 12)

Absent
Rep. Manuel G. Herrera
Sen. Gay G. Kernan

Advisory Members
Sen. Rod Adair
Rep. Thomas A. Anderson
Rep. Nick L. Salazar
Rep. Jeff Steinborn (July 13)
Rep. Peter Wirth

Rep. Donald E. Bratton
Sen. Mary Jane M. Garcia
Sen. William H. Payne
Sen. John Pinto

(Attendance dates are noted for those members not present for the entire meeting.)

Staff
Evan Blackstone
Jeret Fleetwood
Randi Johnson

Guests
The guest list is in the original meeting file.

Thursday, July 12

Committee Business

Representative Heaton began the meeting by noting that he believes there are three major issues currently facing the United States: energy independence, health care and the loss of intellectual human assets. He explained that the United States and New Mexico need to solve energy problems within the context of energy independence, climate change and energy security.

Representative Heaton went on to have members of the committee and staff introduce themselves to the audience.

A State Energy Strategy: Why the Time Is Now

Kate Marks, Energy Program manager for the National Conference of State Legislatures (NCSL), provided the committee with testimony regarding development of a state energy strategy. She explained that global demand for energy resources, particularly coal, natural gas and oil, has increased dramatically over the past decade. She noted that the United States is facing competition from large energy-consuming nations such as China and India and that increased demand and competition for energy resources will drive prices for those resources even higher in what are already regarded as volatile markets. Ms. Marks also reviewed global population growth projections for the next 20 years. The time is now, Ms. Marks emphasized, for the U.S. and New Mexico to think strategically about how their energy is produced and used.

Ms. Marks also discussed global energy supply and infrastructure. She provided the committee with data that show that oil and gas remain the world's primary energy sources, that coal and gas lead power generation growth and that world coal prices are on the rise. Natural gas prices, on the other hand, are unstable given dramatic changes in gas supply. She went on to inform the committee that transportation oil consumption in the U.S. is projected to rise significantly, but domestic oil production is projected not to increase. Ms. Marks noted that the U.S. is witnessing historic ethanol fuel demand and corn prices have doubled as a result.

Ms. Marks then discussed renewable energy resources, such as solar, wind, biomass and geothermal. She began by showing which parts of the U.S. exhibit the most potential for each of those types of renewable energy, pointing out that New Mexico is well positioned to develop wind and solar energy while still showing some potential for biomass and geothermal energies as well. Ms. Marks also touted energy efficiency as another large energy resource, noting that conservation efforts in the U.S. since 1973 have helped significantly to reduce consumption.

Finally, Ms. Marks discussed the use of a synthetic fuel blend in planes used by the U.S. Air Force. She explained that the Air Force is the largest energy consumer in the federal government and that it has actively sought methods of reducing its consumption of oil resources. Ms. Marks noted that the Air Force has developed a synthetic fuel blend, derived from natural gas using the Fischer-Tropsch process, and tested it extensively in its planes. She noted that the Air Force has even set a goal of having its entire fleet certified to use the synthetic fuel blend by 2011. Ms. Marks went on to discuss worldwide production of Fischer-Tropsch fuels and noted

potential benefits of increased use of synthetic fuels.

Questions and comments included:

- development of more efficient automobiles in China;
- development and use of synthetic fuel for applications outside the military;
- emissions problems with coal to liquid fuels;
- stress on energy transmission lines as a component of energy security issues;
- importance of public education in moving toward more efficient use of energy;
- existing capacity of U.S. oil reserves; and
- possible action at the federal level to increase taxes on fuels as a method to stem energy consumption.

Climate Change and Its Impacts on New Mexico

Dr. David Gutzler, professor of earth and planetary sciences at the University of New Mexico, provided the committee with testimony regarding climate change in New Mexico. He explained that significant warming trends have been observed across the state and noted that scientists can confidently predict that additional warming will continue. Dr. Gutzler provided the committee with data on late twentieth century temperature trends in southern New Mexico and twentieth century regional temperature changes and predicted twenty-first century temperatures statewide. He went on to inform the committee of how increasingly warm temperatures would affect New Mexico's rainfall, snowpack and soil moisture, noting that the area where less snowpack and drier soil would be most pronounced is northwestern New Mexico. He emphasized that predicted climate change will likely present water management challenges throughout much of the western U.S.

Dr. Gutzler concluded by noting that warmer temperatures will lead to higher rates of water consumption, reduced snowpack, more evaporation of open water and drier soil. He also pointed out that while prediction of precipitation trends are less certain than warmer temperatures, recent simulations suggest that there could be less annual precipitation and that the periodic cycle of droughts and wet spells could become more extreme in the future.

Jim Norton, director of the Environmental Protection Division of the New Mexico Department of Environment (NMED), provided the committee with testimony regarding New Mexico's greenhouse gas (GHG) emissions inventory. He explained that an executive order by Governor Richardson requires an inventory of GHG emissions in New Mexico. Mr. Norton went on to note that, on a per capita basis, New Mexico produces twice the national average of GHG emissions, pointing out that the largest emitters in New Mexico are electricity generators, the fossil fuel industry and transportation. He also stated that GHG emissions are predicted to grow in New Mexico to 23 percent above 2000 levels by 2020 and that New Mexico emits more GHG than 164 nations.

Brad Musick, environmental analyst for NMED's Air Quality Bureau, discussed potential effects of climate change on New Mexico, indicating that projected climate change is an average

of six to 12 degrees warmer. Other projected changes include more episodes of extreme heat, fewer episodes of extreme cold, more intense storm events and higher evaporation rates. Mr. Musick went on to review the potential effects of climate change on New Mexico's infrastructure, agricultural industry, ecosystems, wildlife, environmental quality and health of its citizens.

Questions and comments included:

- whether climate change is part of a larger cycle of weather and climate patterns or really catastrophic in nature;
- world population growth as a factor that leads to global warming;
- the necessity of long-term planning to combat climate change;
- the shift in drought and precipitation patterns in southern and northern New Mexico;
- the relationship between diminished snowpack and dry soil;
- a possible link between coal-fired power plant production and water increases in temperature;
- the local effect of carbon dioxide emissions;
- whether climate changes affects the intensity of some natural disasters;
- incentives to reduce carbon dioxide emissions;
- carbon dioxide reduction targets that are needed to solve the climate change problem; and
- the role of nuclear power in reducing GHG emissions.

On a motion made, seconded and unanimously approved, the minutes of the June 12, 2007 meeting were approved as submitted.

Representative Wallace reminded the committee of the HAZMAT challenge scheduled for August 2, 2007 in Los Alamos.

Renewable Energy Resource and Technology Opportunities

Roger Taylor, group manager for state, local and tribal integrated applications at the National Renewable Energy Laboratory (NREL), began by providing the committee with an overview of the work performed at NREL. He explained that NREL is the nation's primary laboratory for renewable energy and energy efficiency research and development, and that NREL's mission and strategy are focused on advancing the U.S. Department of Energy's and the nation's goals.

Mr. Taylor went on to review the various renewable resource and renewable technology options for New Mexico. Renewable resource options include geothermal, biomass, wind, solar and hydroelectric energy; technology options include photovoltaic, diesel hybrids, big wind and small hydroelectric. Mr. Taylor also provided information on energy efficiency options and reviewed building designs that use advanced technologies, passive solar strategies and energy-efficient materials. He also summarized the benefits of using Energy Star appliances, efficient lighting and weatherization options.

Mr. Taylor described for the committee in more detail renewable energy technology

options. With regard to wind, Mr. Taylor discussed New Mexico's wind resources and wind turbine sizes and applications. He went on to review biomass projects on home and commercial scales, options for harnessing geothermal energy and hydro power options. Mr. Taylor concluded by briefly discussing the potential for hydrogen, stating that hydrogen is very much in the research stage and the costs of implementation for hydrogen resources are enormous.

Questions and comments included:

- costs associated with wind, solar and nuclear power per kilowatt/hour;
- costs associated with low-power hydro projects and New Mexico's potential for hydro power;
- the construction of new nuclear power plants in the United States;
- the percentage of renewable energy resources that can be reliable baseload power;
- power plants at El Vado and Abiquiu reservoirs;
- parabolic solar energy systems;
- plug-in electric cars and hydrogen production and storage; and
- geothermal energy rights as compared to mineral rights on private land.

Fossil Energy and Technology

Ron Broadhead, principal senior petroleum geologist for the New Mexico Institute of Mining and Technology, provided the committee with testimony regarding oil and gas resources in New Mexico. He explained that New Mexico enjoys the position of being second in the nation in natural gas production and fifth in the nation in oil production. Mr. Broadhead went on to discuss the difference between proven and undiscovered gas and oil, and provided the committee with information regarding how long oil and gas resources would be available at current production rates. He pointed out that a large percentage of gas production comes from recently drilled wells and that new oil reserves have been discovered recently, so the resource base of both is larger than previously estimated. Mr. Broadhead also discussed the effects that price fluctuations have on oil and gas production.

Finally, Mr. Broadhead reviewed New Mexico's coal production, noting that the state only produces 3% of the total tonnage of coal produced in the United States each year. He also pointed out that 85% of the electricity produced in New Mexico is derived from coal.

Next, Dr. George Guthrie, program director for the Office of Fossil Energy and Environment at Los Alamos National Laboratory, provided the committee with testimony regarding fossil fuels as a carbon-neutral energy option. He explained that one of the problems associated with the use of fossil fuels is the creation of GHGs such as carbon dioxide, and that technology has been developed that allows for the capture of carbon dioxide. Dr. Guthrie informed the committee that the technology, called geologic sequestration, involves compressing carbon dioxide into a supercritical fluid, then injecting that fluid into space within geologic reservoirs. The carbon dioxide is initially trapped by impenetrable caprocks and eventually is dissolved in the reservoir brine or reacts to form solid carbonates.

Dr. Guthrie went on to explain that the Department of Energy sponsored the first pilot

scale test of the technology in an oil reservoir near Hobbs in 2003. He also reviewed for the committee a number of the concerns surrounding use of the technology, such as whether the scale of carbon dioxide production in the U.S. makes carbon sequestration a viable option and how elements within the geologic reservoir's brine react with concrete caprock used to seal the reservoir. Any risk assessment, Dr. Guthrie stated, must consider the potential for carbon dioxide release and subsequent movement from storage reservoir to various receptors.

Questions and comments included:

- capture of carbon dioxide during oil and gas production;
- whether carbon dioxide capture technology can be used on older oil and gas wells and power plants or whether it must be installed when first drilling a well or building a power plant;
- the potential for oil shale as a resource;
- whether reaction of carbon dioxide with concrete is actually beneficial to the caprock;
- oil and gas exploration on New Mexico's Otero Mesa;
- oil and gas reserves in New Mexico and the price of coal in New Mexico compared to Wyoming;
- amounts of carbon dioxide produced by oil and gas production;
- the cost of turning captured carbon dioxide into supercritical fluid;
- research on converting carbon dioxide to solids;
- potential damage carbon dioxide can have on well plugs and liability for well plugging; and
- pressure of sequestered carbon dioxide if it were to eat through a caprock.

Nuclear Energy 2007: A Status Report

Marshall Cohen, senior director of legislative programs for the Nuclear Energy Institute, provided the committee with testimony regarding the production of nuclear energy. He explained that demand for electricity in the U.S. has steadily risen over the past several years and is projected to continue to rise. Mr. Cohen pointed out that demand for electricity in 2030 will be 41% greater than it is today, meaning that additional baseload capacity will have to be increased. He also noted that nuclear energy's production costs are significantly lower than oil and gas, while nuclear plants boast a better worker safety record and have formidable, tested security systems. Mr. Cohen also emphasized that nuclear power plants are the largest source of emission-free electricity in the United States. Worldwide, Mr. Cohen stated, nuclear power avoids the emissions of around two billion tons of carbon dioxide annually. He also discussed the concept of standardizing nuclear plants, which would cut down on the cost of designing, building and maintaining them as well as increasing efficiency of regulation of the plants.

Next, Mr. Cohen discussed management of used nuclear fuel. He explained that the current model uses nuclear fuel once, then disposes of the waste at facilities such as Yucca Mountain. However, Mr. Cohen noted that a new strategic direction for used nuclear fuel management targets the large amount of energy that is still left in spent nuclear fuel classified as waste in the U.S. This new technology that uses advanced reactors to recycle nuclear fuel, Mr.

Cohen explained, is already in use in several other nations. Recycling nuclear fuel drastically reduces the amount of waste that must ultimately be stored; nonetheless, repositories such as Yucca Mountain are still needed by the industry for the long term. The Department of Energy, Mr. Cohen stated, will submit a license application for Yucca Mountain next year, but the question still remains as to when that potential storage location will be available.

Finally, Mr. Cohen discussed the construction of new nuclear power plants and reviewed the locations of new nuclear power plants that are under consideration by various companies. Mr. Cohen emphasized that several factors point to an increased role for nuclear energy in the electricity market, such as the growing need for increased electricity generation, volatility in natural gas prices and the problems associated with carbon emissions from fossil fuels. Mr. Cohen also outlined the steps to designing, obtaining licensing for and building new nuclear power plants. Finally, he reviewed policies in other states that support nuclear power construction, including Texas and Wisconsin.

Questions and comments included:

- the percentage of uranium that comes from the former Soviet Republic that is used in nuclear power plants in the U.S.;
- Louisiana Energy Services' uranium enrichment facility, under construction in Lea County, as a future source of nuclear fuel;
- reprocessing of spent nuclear fuel and the percentage of spent nuclear fuel that becomes waste;
- the number of advanced recycling reactors in operation globally and costs associated with building those reactors;
- the estimated number of nuclear power plants needed to meet demands for electricity;
- the viability of Yucca Mountain as a storage facility;
- public and private ownership of nuclear power facilities;
- security of nuclear power facilities and proliferation concerns; and
- transmission lines for electricity generated by nuclear power.

Public Comment

Representative Heaton noted that a member of the public, Ben Luce, would like to speak during the public comment portion of the agenda but would not be available when it was scheduled for the next day. Representative Heaton allowed him instead to speak to the committee before it recessed for the day.

Mr. Luce, a member of the organization Break the Grip, explained to the committee that the presentations regarding renewable energy fell well short of what is really achievable. He noted that 1% of the solar energy available in the Sahara Desert could be enough to power the entire world. Mr. Luce also pointed out that an inordinate number of nuclear power facilities would have to be built to begin really to address global warming.

Mr. Luce went on to note that a decentralized electricity grid would be 60% more efficient than the current centralized one. He also indicated that he believes New Mexico has a terrible energy policy that allows a company such as PNM to charge more money to its customers to make up for lost income due to increased energy efficiency. He also emphasized that the legislature must change the way it conducts business before real energy policy reform can begin to happen.

The committee recessed at 4:50 p.m.

Friday, July 13

Energy Efficiency as a Resource

Gail Ryba, New Mexico's representative in the Southwest Energy Efficiency Project, provided the committee with testimony regarding energy efficiency. She explained that energy efficiency is defined as offering the same services for less energy. She contrasted energy efficiency with conservation, which she pointed out is generally regarded as a change in personal behavior that may or may not be lasting. Ms. Ryba also discussed demand side management (DSM), which is an approach by a utility to implement energy efficiency and reduce consumption.

Ms. Ryba went on to discuss an energy efficiency goal set by the Western Governor's Association of a 20% increase in energy efficiency by 2020. She reviewed the benefits of such a reduction, including consumer and business savings and reductions in GHG emissions. Ms. Ryba also discussed how New Mexico can begin to achieve a 20% increase in energy efficiency. She explained that 4% could be achieved through rate structure reform, while another 3% could be found in improved building energy codes. Other areas that might help New Mexico achieve its goal, Ms. Ryba stated, are increased appliance efficiency standards, industrial sector initiatives and leadership by the public sector. Additional efficiency measures outlined by Ms. Ryba included home lighting, cooling and weatherization.

Finally, Ms. Ryba discussed several policies needed to encourage and increase energy efficiency in New Mexico. These include tax credits for energy-efficient technologies, expanded voluntary industrial efforts, best practices in public sector buildings and expanded training and technical assistance. The three immediate needs in New Mexico to stimulate energy efficiency, Ms. Ryba stated, are continued expansion of utility DSM programs, development of the regulatory structure to give correct market signals and control to utilities and greater emphasis on Energy Star-rated appliances. Other energy efficiency programs Ms. Ryba discussed included rebates for households that purchase energy-efficient appliances, audits and rebates for businesses that upgrade their efficiency and design assistance and incentives for builders that construct efficient homes and businesses.

Questions and comments included:

- energy efficiency programs in New Mexico and efforts conducted by the City of Austin, Texas;

- tax credits offered in New Mexico for energy-efficient buildings;
- light bulb exchange programs in Santa Fe;
- alternative building materials used in building energy-efficient homes;
- energy efficiency programs conflicting with the business model of utilities and what other models the state should explore;
- the success of pay-as-you-save programs;
- opportunities to increase energy efficiency through building codes;
- presence of mercury in compact fluorescent light bulbs; and
- maintenance costs of evaporative coolers versus refrigerated air units.

Challenges of the Changing Energy Era: A Utility's Perspective

Art Hull, a lobbyist for PNM, and Mike D'Antonio, an engineer for PNM, provided the committee with testimony regarding the challenges the utility company faces as the energy market continues to evolve. Mr. Hull explained that PNM faces challenges in three major areas: increased costs, resource development and future energy policy. He noted that even though PNM faces increases in the cost of producing power, the company's rates are still 25% below the regional average and are frozen until 2008. Mr. Hull also pointed out that residential rates are basically the same as they were in 1982 and that the company has actually reduced rates four times since 1994.

Mr. Hull went on to explain that Americans are using 21% more electricity than they were in 1978, with consumption expected to increase another 40% by 2030. He indicated that the power industry will spend roughly $412 billion to meet the increased demand, which includes the construction for new generation, transmission and distribution. Mr. Hull noted that technological developments, such as personal computers and cellular phones, have helped create more demand for electricity, which will in turn increase PNM's need for more resources. PNM's challenge is to achieve a balance by lessening the company's environmental impact while keeping energy prices affordable, he said.

Mr. D'Antonio reviewed for the committee PNM's fossil, nuclear and clean energy resources. He stated that PNM has ownership in two coal-fired power plants, it owns and operates four gas-fired plants and owns a part of the Palo Verde nuclear generating station. He also pointed out that the company purchases some power from the New Mexico Wind Energy Center. With regard to PNM's clean energy resources, Mr. D'Antonio explained that PNM has a 204-megawatt wind energy center, a 25-kilowatt solar photovoltaic generation station near Algodones and is conducting an emissions upgrade at its San Juan coal-fired power plant. He also noted that PNM is studying the development of concentrated solar power.

Mr. D'Antonio outlined PNM's interest in further developing wind and solar energy resources in the western U.S. and provided the committee with information regarding the cost per kilowatt-hour associated with various technologies. He also explained several other clean energy efforts, such as cleaner coal burning technologies, carbon sequestration, storage technologies and smart grid technology.

Mr. Hull informed the committee of some of the efforts PNM has made to address climate change and PNM's future energy policy. He explained that the company has begun to take inventory of and report GHG emissions, participate in national carbon capture programs, use alternative fuel fleet vehicles and develop clean energy resources. He stated that renewable energy will likely be only part of the company's picture, noting that diversity is critical to maintaining cost, reliability and security. Mr. Hull also noted that DSM and energy efficiency must also be considered as a resource. He emphasized that the keys to future energy policy will be to incorporate renewable energy, evolving energy technologies, diversity and security while keeping rates competitive.

Questions and comments included:

- reasons for PNM's four rate reductions since 1994;
- PNM's percentage of ownership in the Palo Verde nuclear power plant;
- whether increased demand for energy from Arizona and California could potentially reduce the amount of power New Mexico receives from the Palo Verde nuclear power plant;
- the amount of New Mexico's electricity furnished by nuclear power;
- plans for a biomass plant near Estancia;
- how the rates PNM charges are calculated and categorized;
- the percentage of people taking advantage of PNM's rebate programs and the current PNM energy efficiency programs;
- how the legislature can help PNM keep its rates reasonable;
- the amount PNM spends per kilowatt/hour to meet demand for electricity;
- the price per kilowatt/hour for concentrated solar technology;
- how aggressive PNM will be in encouraging DSM;
- the relationship between PNM and the Renewable Energy Transmission Authority; and
- whether renewable energy portfolio standards allow companies such as PNM to import renewable energy from other markets.

Sustainable Energy for New Mexico's Future

Ned Farquhar of Mountain West Energy and the Natural Resources Defense Council (NRDC) provided the committee with testimony regarding sustainable energy. He began by providing the committee with a brief summary of recent developments in renewable energy policy in New Mexico, pointing out that he believes that the southwestern U.S. might be the most affected area in terms of climate change and its impacts. Mr. Farquhar went on to note that while New Mexico has made some strides toward better energy policy, policymakers have failed to go far enough in some instances. For example, while New Mexico's adoption of emission reduction standards were among the earliest in the country, the 5% energy efficiency standards approved in 2007 simply fall short. Mr. Farquhar identified three areas that New Mexico should focus on to improve its energy policy further: efficiency, climate policy and renewable energy.

Mr. Farquhar stated that energy efficiency is the first place to begin looking at improving New Mexico's energy policy. He pointed out that the U.S. is only half as energy efficient as

Japan and western Europe. Mr. Farquhar also stated that energy efficiency in New Mexico seems to take a back seat to electricity production. He suggested that California's energy efficiency efforts be followed, explaining that its energy consumption per capita has stayed level for the past 20 years due to effective energy efficiency programs.

Next, Mr. Farquhar discussed climate policy as a means of improving energy policy. He first suggested that regional limits be placed on emissions. Next, Mr. Farquhar suggested that a market-based mechanism be put in place that allows buyers and sellers of energy to set carbon prices. Finally, he emphasized that many climate policies will require mandates, comparing policies to the Food and Drug Administration or to requiring seatbelts in cars.

Mr. Farquhar went on to discuss the potential of renewable energy. He pointed out that renewable energy features fewer carbon emissions and that New Mexico has a large potential to develop wind energy further. Mr. Farquhar also reviewed the storage issues associated with renewable energy and informed the committee that several technologies are being developed to address storage problems, including uphill water pumps for wind energy and injecting air into salt caverns.

Finally, Mr. Farquhar emphasized that the U.S. is at a turning point in its energy policy and that New Mexico needs to stay ahead of the pack in helping to determine the future of energy.

Representative Heaton requested that the next presentation be given and that the committee could ask questions of both presenters afterward.

New Mexico Climate Change Advisory Group: Report and Implementation of Recommendations

Sandra Ely, environment and energy policy coordinator for the NMED, provided the committee with an overview of the work of the New Mexico Climate Change Advisory Group. She explained that the group was established by an executive order issued by Governor Richardson in 2005 and includes representatives from industry, local governments, national laboratories and universities. Ms. Ely also noted that the executive order set aggressive goals for reductions in GHG emission and enlists the advisory group to make recommendations for meeting the emissions targets.

Ms. Ely went on to explain that in 2006, the advisory group issued 69 recommendations covering transportation, land use, energy supply, energy use and agriculture. She pointed out that if all 69 recommendations are implemented, New Mexico will exceed the governor's emissions goals by 2020. Ms. Ely went on to discuss briefly several individual recommendations made by the advisory group, including use of advanced coal-burning technologies, building performance requirements, clean car standards, anti-idling measures in cars, forest protection and restoration and ethanol production.

Next, Ms. Ely discussed a December 2006 executive order issued by Governor Richardson that requires action on 20 of the group's recommendations by seven agencies. Those

recommendations include clean car standards, a GHG reporting and registry program, green building codes and rules for carbon dioxide sequestration. Ms. Ely also reviewed for the committee clean energy legislation passed during the 2007 legislative session and the creation of the western regional climate action initiative. She concluded by informing the committee about a climate registry New Mexico has joined that will provide a common repository for companies, agencies and other organizations to report their entity-wide GHG emissions using standardized GHG measurement protocols.

Questions and comments for Ms. Ely and Mr. Farquhar included:

- GHG emissions from the oil and gas production industry;
- emission of a large percentage of GHGs from electricity generation plants;
- costs associated with establishing clean car standards;
- whether new car standards in New Mexico will simply drive consumers to purchase cars out of state;
- how many of the advisory group's recommendations will require legislative action;
- NRDC's position on Senator Jeff Bingaman's new energy bill and its impacts on New Mexico;
- the possibility of the proposed Desert Rock coal-fired power plan offsetting all of the advisory group's recommendations;
- Environmental Improvement Board appointments made by the governor; and
- increased car emission standards.

Energy in New Mexico: Trends, Vision and Opportunities

Sarah Cottrell, energy and environment policy advisor for the Office of the Governor, and Craig O'Hare, special assistant for renewable energy for the New Mexico Energy, Minerals and Natural Resources Department, provided the committee with testimony regarding New Mexico's role in an evolving energy marketplace. Ms. Cottrell began by explaining that a lack of leadership on climate change at the federal level has forced states to begin taking the lead on climate change and energy issues. For example, the U.S. has no GHG reduction program and no renewable portfolio standard (RPS). She went on to state that both the governor and the legislature have taken a number of steps forward in advancing a better energy and climate policy. For example, Ms. Cottrell emphasized how Governor Richardson's GHG emissions targets, executive orders forming the Climate Change Advisory Group and the passage of the Renewable Energy Transmission Authority and renewable energy tax credits evidence New Mexico's leadership in addressing climate change and energy issues.

Next, Mr. O'Hare provided the committee with a general overview of policy issues surrounding energy planning and management in New Mexico. He explained that New Mexico has world-class energy resources, both fossil and renewable, and detailed the location of the state's wind and solar energy resources. Mr. O'Hare went on to discuss the major energy management policy issues facing New Mexicans, such as cost impacts on citizens and businesses, impacts to public health and global environmental impacts.

Mr. O'Hare reviewed for the committee the current trends in electric power generation,

including increasing fossil fuel costs and the rapid development of wind power. He also discussed the trend of states adopting and increasing RPSs for utility companies, a measure that New Mexico has adopted to drive renewable energy development. He explained that while New Mexico has mandated that the portion of electricity that must come from renewable sources is 20%, other states have gone as high as 25%.

Mr. O'Hare moved on to outline several means of "carbon friendly" power generation, meaning technologies that either reduce or eliminate carbon dioxide emissions. Among the technologies he discussed are advanced coal technologies, nuclear power and concentrated solar power. Mr. O'Hare singled out concentrated solar power as a good candidate for renewable energy worth pursuing because of the ability to meet baseload generation demands. He explained that several states, as well as Spain, have begun pursuing concentrated solar technology to maintain baseloads because the intermittent nature of wind power makes it somewhat less dependable for baseload generation. Additional renewable energy sources that can meet baseload and intermediate power generation needs, he stated, are wind power, distributed generation solar and biomass and geothermal sources.

Mr. O'Hare went on to discuss trends in energy usage in buildings and transportation. He explained that energy-efficient buildings are an underutilized resource and pointed out that some states are beginning to require energy-efficient measures in building codes. Mr. O'Hare also noted that there has recently been a strong interest in research and development work on biofuels for vehicles to help offset reliance on fossil fuels. The public's reaction to gas-electric hybrid vehicles has been very positive, he stated.

Mr. O'Hare concluded by noting that New Mexico is going to have to compete with other states and other countries for the twenty-first century energy economy. The clean energy industry offers significant potential for economic growth, and he emphasized that the time is now for New Mexico to begin making the transition to becoming a leader in energy development.

Questions and comments included:

- wind power as a stable energy source;
- energy storage issues associated with renewable energy;
- how 22 states have implemented RPSs;
- different methods of crafting RPSs for states that have different resources; and
- the need for a national RPS.

Regulatory Oversight of New Mexico's Energy Industry

Jason Marks, vice chair of the New Mexico Public Regulation Commission (PRC), provided the committee with testimony regarding the regulation of New Mexico's energy industry. He began by explaining the risks associated with climate change and pointed out that actions by states can affect GHG. Thirty-four of the top 74 GHG emitters, he noted, are U.S. states. Next, he provided the committee with a brief overview of the PRC's structure, statutory powers related to energy policy and the commission's decision-making process. Mr. Marks stated that the PRC's statutory powers include the Public Utility Act, the Renewable Energy Act and the

Efficient Use of Energy Act. He described the process of the PRC's role in the development of an RPS and discussed the PRC's administrative rules and orders related to renewable energy, including the weighting of technologies and reasonable cost thresholds.

Mr. Marks then discussed the Efficient Use of Energy Act, explaining that it mandates that the PRC require electric and gas utilities to implement cost-effective energy efficiency programs and to approve those programs. He also discussed the PRC's net metering rule and provided the committee with the cost, risk and performance of several energy-producing technologies. Finally, Mr. Marks discussed the PRC's integrated resource planning process.

Questions and comments included:

- whether solar energy has a minimum standard within the RPS; and
- PRC stakeholder meetings on renewable energy portfolio standards and the authority of the PRC to substitute a 20% diversity target for weights in the RPS.

Public Comment

Bill Althouse, a member of Break the Grip, explained to the committee the need to move to a distributed generation system rather than a central power plant system.

David Bacon, also a member of Break the Grip, emphasized that New Mexico should move its energy economy to a decentralized, locally generated energy system.

Leland Lehrman, a candidate for the United States Senate in 2008 and a member of Break the Grip, explained that distributed generation locates larger numbers of smaller generators closer to loads in order to eliminate the need for inherently unstable, inefficient and therefore costly transmission lines. He stated that distributed generation is now mandatory in some European countries, which have been able to turn off central power plants one by one, increasingly relying on multipoint sources of wind, solar and biomass to replace nuclear and coal central plants. Engineers estimate that distributed generation reduces total system costs by 60%, he said. Infeed rates, he emphasized, are the solution to how to ramp up renewable energy capacity on the grid. He went on to state that a monopoly public utility such as PNM has no profit motive to deliver appropriate infeed rates to renewable energy suppliers that it does not own or control. Mr. Lehrman concluded by noting that Tom Casten's book "*Turning off the Heat*" should be required reading for all legislators involved in energy.

Robb Thompson, an associate with the New Mexico Conference of Churches, expressed his support for PNM's study of a large-scale solar energy production system in New Mexico.

Dan Lorimier, a member of the Rio Grande Chapter of the Sierra Club, stated that the chapter does not believe that nuclear energy and coal should be part of New Mexico's energy future; rather, renewable energy should be the centerpiece of New Mexico's future energy plan.

There being no further business, the committee adjourned at 4:15 p.m.